ABSTRACT OF THE DISCLOSURE

The time of arrival of a received signal with multipath components is precisely estimated using an optimal algorithm, such as Maximum Likelihood Estimation (MLE), after restricting the optimal algorithm's search space to one or more time intervals determined by preprocessing the received signal using a less computationally complex sub-optimal algorithm. This approach yields the accuracy benefits of optimal algorithm processing, while reducing aggregate computational complexity. Sub-optimal algorithms include but are not limited to correlation, MUSIC, and Signal-Eigen-Vector (SEV) processing. Iterative sub-optimal pre-processing of the received signal further refines the optimal algorithm search space, and, in some instances, may be used to resolve multipath time-of-arrival (TOA) with sufficient accuracy. Accurate received signal TOA determination enables precise positioning of wireless receivers, which has relevance across a broad range of applications, such as E-911 location services and navigational systems.